

CURRICULUM VITAE

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ACADEMIC QUALIFICATIONS

Université de Montréal, Ph.D. in Organic chemistry (1983)

POSTDOCTORAL STUDIES

1983-1985 Institut national de la recherche scientifique (INRS-Santé)

DIRECTION OF MASTER DEGREE THESIS

- Stéphane Lapointe : “ Effets de la contamination microbienne sur la stabilité des androgènes en milieu urinaire” (1998) Codirecteur : Prof. Michel Sylvestre
- Jean-François Lévesque : “ Sur l’importance clinique de l’excrétion des stéroïdes sulfoconjugués dans le contrôle antidopage” (1998) Codirecteur : Prof. Alain Fournier
- Marilyn Cléroux : “ Identification des métabolites de la nortestosterone et de précurseurs par CG/C/IRMS” (1999-2002)
- Patrick Bhérer : “Caractérisation des métabolites urinaires de l’androstènedione et de la DHEA administrés par voie orale” (1999-2002) Codirecteur : Prof. Donald Poirier, Université Laval
- Claudiane Guay: “Étude de l’excrétion chez l’humain des métabolites des 19-norstéroïdes provenant de diverses origines” (2000 – 2003)
- Josianne Roy: “Caractérisation de métabolites diagnostiques de la DHEA et validation d’une méthode de détection par GC/MS” (2000 – 2003) Co-directeur: Prof. Donald Poirier, Université Laval
- André Lajeunesse : « Utilisation de la spectrométrie de masse d’isotopes stables pour l’identification des métabolites urinaires de précurseurs de la testostérone », (2000 – 2003)
- Sophie Charbonneau : « Utilisation de la HPLC/MS pour l’analyse des métabolites urinaires de corticostéroïdes chez l’humain », (2001 – 2004)
- Isabelle Robillard-Frayne : « Analyse de la teneur en ¹³C des métabolites urinaires de stéroïdes androgènes naturels », (2002 - 2005)

- Julie Gauthier, Caractérisation des métabolites de stéroïdes de contrefaçon produits par cultures d'hépatocytes, (2005 –

POSTDOCTORAL TRAINEE

Paule Émilie Groleau, Purification et caractérisation par spectrométrie de masse de l'érythropoïétine urinaire (2005 –

CURRENT GRANTS (in the field of doping control)

- C. Ayotte, M. Ueki and W. Schanzer: Project: Analysis of testosterone and precursors metabolites in human urine by GC/C/IRMS: a comparative inter-laboratory study (2001-2004).
- C. Ayotte and W. Schanzer, Excretion of 19-norsteroids from consumption of pork meat and offal: combined GC/MS and GC/C/IRMS analysis (2001-2003)
- C. Ayotte, P. Ayotte, D. Cyr, D. Poirier, Characterisation of chemical and pharmacological properties of new steroids related to doping of athletes (2 years: 2005-2006)
- C. Ayotte, A. Fakirian, W. Schanzer, H. Geyer, U. Flenker, Determination of the origin of low urinary levels of 19-norandrosterone by GC/C/IRMS (2006)
- C. Ayotte, P.É. Groleau and P. Desharnais, Purification of EPO in urine samples prior to detection by Isoelectric focussing (2007).

REVIEWER

Scientific papers and Applications for funding

World Anti-Doping Agency, Program 2002, 2003 and 2004;

International Rugby Union, 2002

US Anti-Doping Agency, 2002

Proceedings of the Workshops on Dope Analysis (annual)

Occasionally: British J. Sport Medicine, Clinical Chemistry, Analyst, Steroids, Clinical J. of Sport Medicine

COMMITTEES AND COMMISSIONS OF NATIONAL AND INTERNATIONAL BODIES

- International Association of Athletic Federation (IAAF):
 - Scientific Advisor / Member of the IAAF Doping Commission, 1995 –
- World Anti-Doping Agency (WADA):
 - Member of the WADA Health, Research and Science committee (2000 - 2004)
 - Member of WADA Working Group on Harmonization and Accreditation of Laboratories (2001 - 2004)
 - Member of the WADA Harmonisation and Standardisation Committee (May to November 2000)
- International Olympic Committee (IOC):

- Invited Member of the IOC Medical Commission during the Salt Lake City Olympic Games (2002)
- Member of the IOC Sub-Commission Working Group on IRMS Criteria (2001)
- Member of the Working Group on Protocols Harmonization of the IOC sub-commission Doping and Biochemistry of Sport (March 1996 –1998)
- Elected representative of IOC accredited laboratories, to the IOC sub-commission Doping and Biochemistry of Sport (April 1995 - April 1996)
- Canada:
 - Member of the Evaluation Committee of IRSST (Bourses d'études supérieures), 2005, 2006, 2007
 - Member of RCMP Revision Committee for Anti-Doping Policy (2005)
 - Member of the Expert Committee "Prévention du dopage au hockey mineur québécois (2004)
 - Member of the Jury – Prix du Québec Wilder-Penfield (2002)
 - Chair of the Jury – Prix du Québec Wilder-Penfield (2003)
- Québec :
 - Membre de l'Ordre des Chimistes du Québec (1982 –

HONOURS and AWARDS

- Medal of Honour of the Canadian Medical Association, 2006
- Honorary President - Forum provincial " Carrière en chimie ", Université Laval, 2006 and 1998
- Honouree – Collation des grades, Faculté des arts et des sciences, U. de Montréal, 2004
- Honorary president – National Conference on Doping in Sports, Canada, February 2001
- Scientist of the Year 1999 – Société Radio-Canada (Les Années-lumière)
- Week's personality – La Presse (January 2000)
- Women Honouree – Businesswomen in Action committee, Board of Trade of Metropolitan Montreal, May 2000
- Membre du Cercle d'excellence de l'Université du Québec, August 2000

MEETINGS, WORKSHOPS AND ROUND TABLES

- Training Workshop :
 - ILAC/WADA Auditors, Montréal, 2004, 2005, 2006
 - Network "Intervenants – présentateurs", Anti-Doping Education, RCMP Headquarters, March 2006
 - Trainers Montérégie, November 2005
 - Trainers, Team Physicians LHJMQ, 2005
 - Canadian Doping Adjudicators, 2001, 2004, 2006
 - Canadian Doping Control Officers, 1999, 2001, 2003, 2005
- 5th Annual USADA Symposium on Anti-Doping Science: "Intra-Individual Reference Ranges: Implications for Doping Control", Lausanne 2006 (Invited Speaker)

- 2006 IAAF World Anti-Doping Symposium, Effectiveness of the Anti-Doping Fight, Lausanne (Invited Speaker and Scientific Organizer).
- Bar/café des sciences des Années-lumière/Québec Sciences, Montréal, September 2004
- Bar des sciences du Cegep St-Laurent, September 2004
- Round Tables: « Sciences et médias, avons-nous l'heure juste? », Café scientifique – Les 24 heures des sciences, Cegep Montmorency, mai 2006
- Symposium WADA/CCES Food Supplement, Montréal, May 2004
- Conference: “Oxygen transport enhancing agents and methods”, Atlanta, USA, October 2002
- Table ronde : «Les défis du sport d’aujourd’hui », Dopage, drogues, sports et les jeunes, Forum mondial drogues et dépendances – Enjeux pour la société, Montréal, 24 septembre 2002.
- Table ronde: “La science a-t-elle mauvaise presse auprès des jeunes? » 14e Colloque de l’Association pour la recherche au collégial, Collège Bois-de-Boulogne, mai 2002.
- Doping Adjudicator Training Workshop, Canada, November 2001.
- Table ronde : Les défis du sport : en quête d’excellence et d’intégration sociale, Journée Canada – France, Parlement du Canada, mai 2001.
- Journée « Les filles et les sciences, un duo électrisant ! », École de technologie supérieure, février 2001
- IAF International Seminar, From a Great Past to an Even Brighter Future Women’s Athletics on the Eve of the New Millennium, Granada (1998)
- International Research Symposium and Consensus Conference, USOC, San Diego, January 1997.
- IAF Seminar 1995, “Harmonisation of Doping Issues in the IAAF”, Paris 1995
- Cologne Workshop on Dope Analysis, Cologne, 1990-
- 4th World Conference on anti-doping in Sport, London, September 1993.
- Canadian representative on the Research Working Party of the Monitoring Group of the Anti-doping Convention, Council of Europe, Second Meeting, Strasbourg, December 1992, and Third Meeting, Paris, April 1993.

TESTIMONIES AND EXPERTISE

- Hearings and Arbitration of national and international sport organizations (CAS, IAAF, Canada, USATF, AAA): Expert witness (IAAF, IWF, Australian Olympic Committee, FINA, USA Track & Field, Athletics Canada, CCES, Norwegian Confederation of Sports, USA Swimming, IPC and others).
- Member of an ATP (Association de Tennis Professionnel) Hearing Panel (01/1997).
- Coroner inquiry (Death of hockey player J. Kordic).
- Criminal Court (Anabolic steroid importation and traffic).

FORMATION AND EDUCATION: CONFERENCES AND WORKSHOPS

- Canadian Athletes
- Doping Control Officers (CCES)
- Arbitrators

- Sport Physicians
- Police forces: Organised crime inquiries, prevention of drug use
- Trainers and coaches
- Sport specialists
- Hockey Québec : Stage d'entraîneurs de niveau avancé
- High school and Cegep students
- University students: kinesiology, sport education, science

BOOK CHAPTER

C. Ayotte, Drugs and Drug Testing, in International Encyclopedia of Women & Sports, Berkshire Reference Works and Macmillan Reference (invited), K. Christensen, A. Guttmann and G. Pfister eds., Macmillan Reference USA , Vol. 1 p. 338-343 (2001)

PUBLICATIONS (invited)

1. AYOTTE, C., GOUDREAULT, D. et CHARLEBOIS, A.: Testing for natural and synthetic anabolic agents in human urine. J. Chromatogr.-Biomed. Appl., 687 (1), 3-25 (1996) (Special issue *in memoriam* M. Donike).
2. AYOTTE, C.: The integrity of urine samples: the effects of temperature and bacteria on the validity of the analytical result. Proceedings of the IAF Seminar 1995, Paris, France, October 10-11, 1995, in “ Harmonisation of Doping Issues in the IAAF ”, p. 127-138 (1997).
3. AYOTTE, C.: Evaluation of elevated testosterone/epitestosterone values in athletes' urine samples, IAF New Studies in Athletics, Vol. 12 (2-3) September 1997.
4. AYOTTE, C.: Doping: Different conditions, Concerns and Dangers for Women, Official proceedings, IAF International Seminar, From a Great Past to an Even Brighter Future Women's Athletics on the Eve of the New Millennium, Granada (1998) p.47.
5. AYOTTE, C., and GOUDREAULT, D.: The detection of new synthetic drugs in athletes' urine samples. Journal of Toxicology, Toxin Reviews, Special Issue on Doping in Sports: Current Issues, 18 (2), 113-123 (1999).
6. AYOTTE, C.: Nutritional supplements and doping controls, IAF New Studies in Athletics 14(3), 37 (1999).
7. AYOTTE, C.: The significance of 19-norandrosterone findings in athletes' urine samples, (review), Br J Sport Med; 40 (Suppl.): i25-i29 (2006)

PUBLICATIONS (IN THE FIELD OF DOPING CONTROLS

1. MASSE, R., AYOTTE, C. and DUGAL, R.: Studies on anabolic steroids.1. Integrated methodological approach to the gas chromatographic mass spectrometric analysis of anabolic steroid metabolites in urine. J. Chromatogr., 489, 23-50 (1989).

2. MASSE, R., BI, H., AYOTTE, C. and DUGAL, R.: Studies on anabolic steroids.2. Gas chromatographic/Mass spectrometric characterization of oxandrolone urinary metabolites in man. *Biomed. Environ. Mass Spectrom.*, 18, 429-438 (1989).
3. MASSÉ, R., AYOTTE, C., BI, H. et DUGAL, R. : Studies on anabolic steroids. 3. Detection and characterization of stanozolol urinary metabolites in man by GC/MS. *J. Chromatogr. Biomed. Appl.*, 497, 17 (1989).
4. GRAVEL, D., FARMER, L. and AYOTTE, C.: Photosensitized cleavage of β -phenylthio alcohols: a synthetically useful indirect redox cleavage of the olefinic bond. *Tetrahedron Letters*, 31, 63 (1990).
5. LAL, S., VASAVAN NAIR, N.P., THAVUNDAYIL, J.X., TAWAR, V., GUYDA, H. and AYOTTE, C.: The effect of methyltestosterone on the growth hormone response to the dopamine receptor agonist, apomorphine. *Prog. Neuropsychopharmacol. biol. psychiatr.*, 15, 263 (1991).
6. MASSÉ, R., BI, H., AYOTTE, C., DU, P. GÉLINAS, H., and DUGAL, R.: Studies on anabolic steroids.5. The sequential reduction of methandienone and structurally related steroid A-ring substituents in human. A GC/MS study. *J. Chromatogr., Biomed Appl.*, 562, 323-340 (1991).
7. GAREAU, R., BRISSON, G.R., AYOTTE, C., DUBÉ, J. et CARON, C.: Erythropoietin doping in athletes: possible detection through measurement of von Willebrand factor and D-dimer activity? *Thrombosis & Haemostasis*, 68, 481-482 (1992).
8. GAREAU, R., GAGNON, M.G., AYOTTE, C., CHÉNARD, C. and BRISSON, G.R. : rHuEPO increases urinary excretion of fibrin degradation products in haemodialysed patients. *Thrombosis and Haemostasis*, XX, 373-374 (1993).
9. ADAM, A., AYOTTE, C., GERVAIS, N., PANOYAN, A., DELAHAUT, P., BÉLIVEAU, L., and ONG, H.: Detection of Clenbuterol Residues in Hair. *Analyst*, 119, 2663 (1994).
10. LI, F., COOPER, S.F., CÔTÉ, M.G. and AYOTTE, C. : Analysis of the enantiomers of bunolol in human urine by high-performance liquid chromatography on chiral AGP stationary phase and identification of their metabolites by gas chromatography-mass spectrometry. *J. Chromatogr.-Biomed. Appl.*, 660, 327-339 (1994).
11. GAREAU, R., GAGNON, M.G., THELLEND, C., CHÉNARD, C., AUDRAN, M., CHANAL, J.-L., AYOTTE, C., and BRISSON, G.R. : Transferrin soluble receptor : A possible probe for detection of erythropoietin abuse by athletes. *Horm. Metab. Res.*, 26, 311-312 (1994).
12. PANOYAN, A., DELAHAUT, P., AYOTTE, C., LAMOTHE, P., ONG,H., and ADAM, A.: Detection of clenbuterol in the hair of calves. *J. Agricul. Food Chem.*, 43, 2716 (1995).
13. ROBINSON, N., TARONI, F., SAUGY, M., AYOTTE, C., MANGIN, P. AND DVORAK J., Detection of nandrolone metabolites in urine after a football game in professional and amateur players: a Bayesian comparison, *Forensic Sci. Int.*, 122, 130 (2001).

14. C. AYOTTE, J.F. LÉVESQUE, M. CLÉROUX, A. LAJEUNESSE, D. GOUDREAULT AND A. FAKIRIAN: Sport Nutritional Supplements: Quality and Doping Controls, *Can. J. Applied Physiology*, 2b, Suppl., S120 (2001).
15. PIPE, A. AND AYOTTE, C., Nutritional Supplements and Doping, *Clin J Sport Med.* 2002 12(4):245-9. Review
16. HEBESTREIT, M., FLENKER, U., FUBHOLLER, G., GEYER, H., GUNTNER U., MARECK, U., PIPER, T., THEVIS, M., AYOTTE, C. AND SCHANZER, W., Determination of the origin of urinary norandrosterone traces by gas chromatography combustion isotope ratio mass spectrometry, *Analyst*, 2006, 131 1021-1026.

PROCEEDINGS

1. MASSÉ, R., AYOTTE, C. et DUGAL, R.: An integrated gas chromatographic-mass spectrometric screening method for anabolic steroid urinary metabolites in man. *Proceedings of the International Conference: Developments in analytical methods in pharmaceutical, biomedical and forensic sciences*, University of Verona, Italy, Plenum Pub. Co., p. 183, (1987).
2. AYOTTE, C.: Detection and confirmation of Clenbuterol and some β -blocking agents. Recent advances in doping analysis. *Proceedings of the 10th Cologne Workshop on Dope analysis*, June 7-12, 1992, ed. by M. Donike, H. Geyer, A. Gotzmann, U. Mareck-Engelke, S. Rauth, Edition Sport - Köln, pp 185-196, (1994).
3. AYOTTE, C.: Old doping agent, old method: Pemoline TMS-derivative. Recent advances in doping analysis. *Proceedings of the 11th Cologne Workshop on Dope analysis*, March 7-12, 1993, ed. by M. Donike, H. Geyer, A. Gotzmann, U. Mareck-Engelke, S. Rauth, Edition Sport - Köln, pp 111-123, (1994).
4. BRISSON, G.R., GAREAU, R. and AYOTTE, C. : Induced haemostatic shift : a possible tool for EPO detection. Recent advances in doping analysis. *Proceedings of the 11th Cologne Workshop on Dope analysis*, March 7-12, 1993, ed. by M. Donike, H. Geyer, A. Gotzmann, U. Mareck-Engelke, S. Rauth, Edition Sport - Köln, pp 185-190, (1994).
5. GAREAU, R., BRISSON, G.R., AYOTTE, C., AUDRAN, M. and CHANAL, J.-L. : A possible approach to erythropoietin doping detection. In: *Blood Samples in Doping Control* (P. Hemmersbach and K.I. Birkeland, eds). *Proceedings of the Second International Symposium on Drugs in Sports*, Lillehammer, Norway, August 29-31, 1993. Oslo: Pensumtjeneste, pp. 141-151 (1994).
6. AYOTTE, C.: Determination of free methyltestosterone in plasma samples. *Proceedings of the 12th Köln Workshop on dope analysis*, Institut für Biochemie, Köln, Germany, April 9-16, 1994, ed. by M. Donike, H. Geyer, A. Gotzmann, U. Mareck-Engelke, Edition Sport - Köln, pp 81-92, (1995).
7. AYOTTE, C., CHARLEBOIS, A., GOUDREAULT, D., and LÉVESQUE, C.: Improvements of drug detection and analysis by appropriate preparation of the injection port of the

- chromatograph. Recent advances in doping analysis. Proceedings of the 12th Köln Workshop on dope analysis, Institut für Biochemie, Köln, Germany, April 9-16, 1994, ed. by M. Donike, H. Geyer, A. Gotzmann, U. Mareck-Engelke, Edition Sport - Köln, pp 375-392, (1995).
8. AYOTTE, C., GOUDREAULT, D. and CHARLEBOIS, A.; The integrity of urine samples: the effect of temperature and bacteria on the validity of the analytical results, Proceedings of the Seminar of the International Athletic Foundation, Paris, October 1995.
 9. GOUDREAULT, D., et AYOTTE, C.: Investigation of mesterolone urinary metabolites by GC/MS. Recent advances in doping analysis. Proceedings of the 13th Köln Workshop on Dope Analysis, Institut für Biochemie, Köln, Germany, March 13-17, 1995, ed. by M. Donike, H. Geyer, A. Gotzmann, U. Mareck-Engelke, Edition Sport - Köln, pp. 55-80 (1996).
 10. AYOTTE, C. and CHARLEBOIS, A.: T/E values : measurements and observations. Recent advances in doping analysis. Proceedings of the 14th Köln Workshop on Dope Analysis, Institut für Biochemie, Köln, Germany, March 17-22, 1996, W. Schänzer, H. Geyer, A. Gotzmann, U. Mareck-Engelke (editors) Sport and Buch Straub, Köln, pp 91-97 (1997).
 11. AYOTTE, C., CHARLEBOIS, A., LAPOINTE, S., BARRIAULT, D. and SYLVESTRE, M. : Validity of urine samples : microbial degradation. Recent advances in doping analysis. Proceedings of the 14th Köln Workshop on Dope Analysis, Institut für Biochemie, Köln, Germany, March 17-22, 1996, W. Schänzer, H. Geyer, A. Gotzmann, U. Mareck-Engelke (editors) Sport and Buch Straub, Köln, pp 127-137 (1997).
 12. GOUDREAULT, D. and AYOTTE, C.: The identification of fenozolone urinary metabolites, Proceedings of the 16th Köln Workshop on Dope Analysis, Institut für Biochemie, Köln, Germany, W. Schänzer, H. Geyer, A. Gotzmann, U. Mareck-Engelke (editors) Sport and Buch Straub, Köln (1998)
 13. LEVESQUE, J.-F. and AYOTTE, CH. : Criteria for the detection of Androstenedione oral administration, Proceedings of the 17th Cologne Workshop on Dope Analysis (1999), p. 169.
 14. LEVESQUE, J.-F. and AYOTTE, CH. : The oral administration of DHEA : the efficiency of steroid profiling, Proceedings of the 17th Cologne Workshop on Dope Analysis (1999), p. 213.
 15. AYOTTE, C., GOUDREAULT, D., LAJEUNESSE, A., CLÉROUX, M., RICHARD, Y., CHARLEBOIS, A., COUTURE, J. -P. and FAKIRIAN, A.: GC/C/IRMS and GC/MS in "Natural" Steroids Testing, in Proceedings of the 19th Cologne Workshop on Dope Analysis (2001), p. 133.
 16. GOUDREAULT, D., BHÉRER, P., LÉVESQUE, J.-F., POIRIER, D. and AYOTTE, C. : Androstenedione metabolism: end of the story ..., in Proceedings of the 19th Cologne Workshop on Dope Analysis (2001), p. 73.
 17. AYOTTE, C., GUAY, C., CLÉROUX, M., GOUDREAULT, D. and FAKIRIAN, A., Origin of elevated levels of norandrosterone in human urine: half-truths vs. facts, in Recent advances in doping analysis (10), Proceedings of the 20th Cologne Workshop on Dope analysis, Schanzer

W. Geyer H., Gotzmann A., and Mareck-Engelke U. (eds). Sport & Buch Strauß..Cologne, (2002), p. 13.

18. AYOTTE, C., Litigation and Doping Controls: Defending positive findings of endogenous steroids, in Recent Advances in Doping Analysis (10), Proceedings of the 21th Cologne Workshop on Dope Analysis, W. Schänzer, H. Geyer, A. Gotzmann, U. Mareck-Engelke (editors) Sport and Buch Straub, Köln (2003) p. 239.
19. AYOTTE, C., GOUDREAULT, D., CYR, D., GAUTHIER, J., AYOTTE, P., C. LAROCHELLE and POIRIER, D., Characterisation of chemical and hormonal properties of new steroids related to doping of athletes, Proceedings of the Manfred Donike Workshop, 24th Cologne Workshop on Dope Analysis, Cologne, June 2006, p. 151.
20. AYOTTE, C., ROMIGUIÈRE, C., FAKIRIAN, A., FLENKER, U., HEBESTREIT, M., PIPER, T. and SCHANZER, W., The usefulness of GC/C/IRMS in determining the origin of low levels 19-NA: Application to routine analyses, Proceedings of the Manfred Donike Workshop, 24th Cologne Workshop on Dope Analysis, Cologne, June 2006, p. 277.
21. P. DESHARNAIS, P.E. GROLEAU, C. HAMELIN, AND C. AYOTTE, Intermediate neuraminidase activity: a possible link toward suspicious or “effort-like” EPO isoelectric profiles, Proceedings of the Manfred Donike Workshop, 24th Cologne Workshop on Dope Analysis, Cologne, June 2006, p. 435.
22. P.E. GROLEAU, P. DESHARNAIS, C. HAMELIN, AND C. AYOTTE, Purification of EPO from urine retentates prior to IEF, Proceedings of the Manfred Donike Workshop, 24th Cologne Workshop on Dope Analysis, Cologne, June 2006, p. 431.

OTHER PUBLICATIONS

Scientific Reports :

- AYOTTE, C., CHARLEBOIS, A., LAPOINTE, S. et SYLVESTRE, M., BARRIAULT, D., Microbial Degradation of Urine Samples Collected in Athletic Drug Testing Programmes, IAF Project 96-3, rapport soumis à International Athletic Foundation, juillet 1997.
- AYOTTE, C., FAKIRIAN A., SAUGY, M., SEGURA, J., Evaluation of Elevated Caffeine Cases, rapport soumis à la fédération internationale d’athlétisme, juillet 1997.
- AYOTTE, C. et GOUDREAULT, D., Report on the Identification of a new doping agent of Russian origin: Bromantan, rapport soumis à la Commission médicale du Comité international olympique, mai 1996
- AYOTTE, C., FAKIRIAN A., SCHANZER, W., FLENKER, U. et UEKI, M., Analysis of testosterone and precursors metabolites in human urine by GC/C/IRMS: a comparative inter-

laboratory study, rapport soumis à l'Agence mondiale antidopage, octobre 2004

- GUAY, C., GOUDREAULT, D., SCHANZER, W., FLENKER, U., AYOTTE, C., Excretion of norsteroids' phase II metabolites of different origins in human, rapport soumis à l'Agence mondiale antidopage, 2003

CONFÉRENCES (INVITATION)

1. AYOTTE, C.: Two years of doping controls in Canadian Body Building, General Meeting of the Canadian Body Building Federation. Montréal (septembre 1993).
2. AYOTTE, C.: Approches analytiques utilisées pour la détection d'agents dopants. Conférence : dopage et drogues de rue. Centre hospitalier Ste-Marie, Trois-Rivières (novembre 1993).
3. AYOTTE, C.: Le contrôle du dopage : historique, stratégies analytiques, recherche. Conférence de l'Institut canadien de chimie, Université Laval, Québec, QC, 1er décembre 1994.
4. AYOTTE, C., GOUDREAULT, D. and CHARLEBOIS, A.: Testing for natural steroids. The integrity of urine samples: the effect of temperature and bacteria on the validity of the analytical results. IAF Seminar, Paris, France, octobre 1995.
5. AYOTTE, C., GOUDREAULT, D. and CHARLEBOIS, A.: Testing for natural and synthetic anabolic agents. Department of Pathology, Indiana University, Indiana, USA, October 5, 1995.
6. AYOTTE, C., LAPOINTE, S., CHARLEBOIS, A. and SYLVESTRE, M.: Bacterial contamination of urine samples, USOC International Research Symposium & Consensus Conference, San Diego, USA, January 1997.
7. AYOTTE, C., GOUDREAULT, D. and CHARLEBOIS, A.: About T/E measurements and cases, USOC International Research Symposium & Consensus Conference, San Diego, USA, January 1997.
8. AYOTTE, C.: Athletic Drug Testing, Sigma Xi, McGill Chapter, Université McGill, novembre 1997.
9. FAKIRIAN A. et AYOTTE, C., « La spectrométrie de masse dans les tests de contrôle du dopage sportif », Congrès de la société québécoise de biochimie clinique, novembre 1998.
10. AYOTTE, C.: Doping: Different conditions, Concerns and Dangers for Women, Official proceedings, IAF International Seminar, From a Great Past to an Even Brighter Future Women's Athletics on the Eve of the New Millennium, Granada (1998).
11. AYOTTE, C., Contrôle du dopage sportif: les « suppléments diététiques », Conférence d'ouverture, Colloque étudiant, Université de Sherbrooke (octobre 1999).
12. AYOTTE, C., Drugs stories and nutritional supplements, Workshop of the CCES Doping Control Officers, November 1999.
13. AYOTTE, C., Contrôle du dopage sportif: Médicaments et suppléments alimentaires, Département d'éducation physique, Université du Québec à Trois-Rivières, septembre 2000.

14. AYOTTE, C., Contrôle du dopage sportif: Suppléments diététiques et autres dopes, Colloque de l'enseignement d'éducation physique & science de l'activité physique, Université de Montréal, novembre 2000.
15. AYOTTE, C., Contrôle du dopage sportif: point de vue du chimiste, 3e Symposium de chimie, Université de Montréal, février 2001.
16. AYOTTE, C., Trends in Drug testing: Nutritional Supplements and « Natural » substances, The Inter-Hospital Medical Biochemistry Seminar, McGill University Health Centre, Montreal Children's Hospital, February 6, 2001.
17. AYOTTE, C., Les agents dopants: médicaments, compléments alimentaires et autres, Dopage chez les jeunes sportifs au Canada, 23 février 2001.
18. AYOTTE, C., Tendances en dopage sportif : Compléments alimentaires et substances naturelles, Colloque de formation de l'Association québécoise des médecins du sport, Ville de Bécancour, 5 mai 2001.
19. AYOTTE, C., Testing for Natural and Synthetic Anabolic Agents in Human Urine, 84th CSC Conference and Exhibition, Symposium Analysis of Biomolecules, Drugs and Metabolites, Montreal, May 30th, 2001.
20. AYOTTE, C., Sport Nutritional Supplements: Quality and Doping Controls, First International Scientific Congress on Nutrition & Athletic Performance, Edmonton, Alberta 2001.
21. AYOTTE, C., Testing for synthetic and "natural" steroids in human urine, Merck-Frosst, Montreal Mass Spectrometry Group Meeting, November 2001.
22. AYOTTE, C., Le contrôle du dopage sportif, Conférence-débat sur le dopage sportif, Collège François-Xavier-Garneau, Ste-Foy, Québec, 23 janvier 2002.
23. AYOTTE, C., Doping vs. Doping Control: Who is winning the race? Canadian Academy of Sport Medicine (CASM) 2002 Annual Conference, Mont-Tremblant, Québec, March 21-23, 2002.
24. AYOTTE, C., GOUDREAULT, D., LEVESQUE J.-F., CLEROUX, M., LAJEUNESSE A., GUAY, C., RICHARD, Y., CHARLEBOIS, A. and FAKIRIAN, A., Testing for Anabolic Agents in human: GC/MS and GC/C/IRMS Analyses, HPLC 2002, 26th Symposium international sur la chromatographie liquide à haute performance et techniques apparentées, juin 2002.
25. AYOTTE, C., Le dopage sportif: *un problème*, Atelier « Faire appel aux milieux de la médecine et des sciences du sport », Conférence mondiale 2002 sur les femmes et le sport, Montréal, mai 2002.
26. AYOTTE, C., Athletes and Sport Supplements: Risky Business, Conference Play the Game 2002, Copenhagen, 12 novembre 2002
27. AYOTTE, C., Le dopage dans le sport: perspective de chimiste, Association des Urologues du Québec, Éducation médicale continue, Montréal, 16 novembre 2002
28. AYOTTE, C., Le dopage sportif : rôle du laboratoire d'analyse, Centre de recherche Université Laval, 10 juin 2003

29. AYOTTE, C., Les compléments nutritionnels: les athlètes savent-ils ce qu'ils consomment?, Conférence Les biosciences apprivoisées, Musée Armand-Frappier, 14 octobre 2003
30. AYOTTE, C., GUAY, C., CLEROUX, M., LAJEUNESSE A., LEVESQUE J.-F., FAKIRIAN, A., and GOUDREAULT, D., Modifications of the urinary steroids following the administration of "natural" steroids in human, Annual scientific meeting of the Ontario Society of clinical chemists, Hamilton, 13 November 2003.
31. AYOTTE, C., Update on Laboratory work, IAAF, Annual meeting of the Medical and Anti-doping Commission, Monaco, 23 January 2004
32. AYOTTE, C., La spectrométrie de masse et le contrôle du dopage sportif, Colloque des étudiants – chercheurs, UQAM, 29 Avril 2004
33. AYOTTE, C., Utilisation d'hormones par les sportifs : pratiques et stratégies analytiques de dépistage, Réunion scientifique annuelle de l'association des médecins endocrinologues du Québec, Montréal, 28 mai 2004
34. AYOTTE, C., Hormones in sport : abuse and strategies of detection, Guest lecture, National undergraduate Chemistry conference, Université d'Ottawa, octobre 2004
35. AYOTTE, C., Médicaments, drogues et tests, Atelier de formation, Service d'analyse des drogues de Santé Canada, Cornwall, juin 2005
36. AYOTTE, C., Identifying new doping agents, ACS, Division Chemistry and The Law, Washington, DC, August 2005
37. AYOTTE, C., Analytical Approaches to Drug Testing in Athletes; Interpreting Test Results, Keynote Lecture, 18th Annual International Ion Chromatography Symposium, Montréal, September 2005
38. AYOTTE, C., Les défis de la lutte au dopage: stéroïdes « naturels » et de contrefaçon, IRSST, novembre 2005.
39. AYOTTE, C., Le dopage illustré, Conférence, Semaine québécoise des entraîneurs, Longueuil, 6 novembre 2005
40. AYOTTE, C., Le dopage des sportifs – perspective 2006, L'Olympisme : sport ou science ? Cycle des conférences sur l'Olympisme, Centre des Sciences de Montréal, 21 février 2006
41. AYOTTE, C., Connaître et combattre le dopage des sportifs en 2006, Acfas-Sudbury, Université Laurentienne, Sudbury, 31 mars 2006
42. AYOTTE, C., Dépistage des agents dopants: Interprétation des résultats, Conférence, Forum provincial Carrières en chimie, Université Laval, mars 2006
43. AYOTTE, C., Sport et dopage 2006 – Réflexion, Regroupement des entraîneurs de la Mauricie, Université Trois-Rivières, 16 mai 2006
44. AYOTTE, C., Steroid Profiling in Anti-Doping Controls, 5th Annual USADA Symposium on Anti-Doping Science: "Intra-Individual Reference Ranges: Implications for Doping Control", Lausanne 2006.

45. AYOTTE, C., Current Anti-Doping Realities I and II, Specific Scientific Issues: Anabolic Androgenic Steroids – Steroid Profiling and Designer Steroids, 2006 IAAF World Anti-Doping Symposium, Effectiveness of the Anti-Doping Fight, Lausanne 2006.
46. AYOTTE, C., Anabolic Androgenic Steroids: Dietary Supplements?, "Harmonising the Knowledge about Biomedical Side Effects of Doping", Technical University of Munich, Institute of Public Health Research, Munich, 21st of October, 2006.
47. AYOTTE, C., Utilisation of Mass Spectrometry in Doping Controls: Anabolic Androgenic Steroids, Second Symposium on Tandem Mass Spectrometry, Centre hospitalier, Sherbrooke University, February 2007.

CONFERENCES (in the field of Doping Controls)

1. MASSE, R., LALIBERTE, C., AYOTTE, C. and DUGAL, R.: Characterization of oxymesterone oxymetholone urinary metabolites by GC/MS. 2nd International symposium "Modern problems of doping control in sports", Moscow, USSR, April 12-14, 1985.
2. MASSE, R., LALIBERTE, C., AYOTTE, C. and DUGAL, R.: Gas chromatographic- mass spectrometric screening of anabolic steroids urinary metabolites using selected-ion monitoring. 33rd Annual Conference on Mass Spectrometry and Allied Topics, San Diego, Calif., May 26-31, 1985.
3. GELINAS, H., AYOTTE, C., DUGAL, R. et MASSE, R.: Détection et caractérisation d'un nouveau métabolite urinaire du Danabol chez l'homme par la technique de GC-MS. 54e congrès, Association canadienne-française pour l'avancement des sciences (ACFAS), Université de Montréal, Montréal, QC, 12-16 mai 1986.
4. MASSE, R., AYOTTE, C., MARTINEAU, A. and DUGAL, R.: An integrated GC-MS screening method for the detection of anabolic steroid metabolites. International Conference, Developments in Analytical Methods in Pharmaceutical Biomedical and Forensic Sciences, University of Verona, Verona, Italy, June 25-27, 1986.
5. MASSE, R., AYOTTE, C., BI, H. and DUGAL, R.: Detection identification and excretion profile of furazabol and stanozolol urinary metabolites in man. 7th Cologne Workshop in Dope Analysis, Cologne, Federal Republic of Germany, June 18-24, 1989.
6. BI, H., AYOTTE, C., DUGAL, R. and MASSE, R.: Biotransformation in man and stability of oxandrolone in the course of urine processing prior to GC/MS analysis. 7th Cologne Workshop in Dope Analysis, Cologne, Federal Republic of Germany, June 18-24, 1989.
7. MASSE, R., BI, H., AYOTTE, C. and DUGAL, R.: A review of the metabolic pathways of some 17 β -hydroxy-17 α -methyl anabolic steroids in man. 4th International Symposium on Doping Control in Sport, Moscow, USSR, October 9-12, 1989.
8. AYOTTE, C., MASSE, R., BI, H., DU, P., GELINAS, H. and DUGAL, R.: Methandienone Metabolism. 8th Cologne Workshop in Dope Analysis. Cologne, Federal Republic of Germany, March 25-31, 1990.
9. MASSE, R., BI, H., AYOTTE, C., DU, P., GELINAS, H. and DUGAL, R.: Studies on anabolic steroids.6. The sequential reduction of methandienone and structurally related steroid A-ring substituents in human. A GC/MS study. 2nd International Symposium on Applied Mass Spectrometry, Barcelona, Spain, April 16-19, 1990.

10. AYOTTE, C.: Some useful statistical tools for the analysis of T/E elevated ratios and steroid profiling. 9th Cologne Workshop in Dope Analysis, Institut für Biochemie, Cologne, Federal Republic of Germany, March 1991.
11. AYOTTE, C.: Detection and confirmation of Clenbuterol and some β -blocking agents, 10th Cologne Workshop in Dope Analysis. Institut für Biochemie, Cologne, Germany, June 1992.
12. AYOTTE, C.: Old doping agent, old method : pemoline TMS-derivative. 11th Köln Workshop on Dope Analysis, Institut für Biochemie, Köln, Germany, March 7-12, 1993.
13. BRISSON, G.R., GAREAU, R. et AYOTTE, C.: Induced haemostatic shift: a possible tool for EPO detection. 11th Köln Workshop on Dope Analysis, Institut für Biochemie, Köln, Germany, March 7-12, 1993.
14. BRISSON, G.R., AYOTTE, C., GAREAU, R. et GOUDREAULT, D. : Utilité de rapports Testostérone / Épitestostérone multiples dans la détermination d'un dopage par manipulations hormonales. Présentation au XIIIe Congrès scientifique de la Société Française de Médecine du Sport et au Congrès International du Groupement Latin et Méditerranéen de Médecine du Sport, Montpellier, France, 24-26 juin 1993.
15. GAREAU, R., BRISSON, G.R., AYOTTE, C., AUDRAN, M. et CHANAL, J.-L. : A possible approach to erythropoietin doping detection. Second International Symposium on Drugs in Sports, Lillehammer, Norway, August 29-31, 1993.
16. BRISSON, G.R., AYOTTE, C. et GAREAU, R. : Manipulations hormonales chez le sportif: les raffinements de la médecine au service du dopage. 13e Journées Internationales de Médecine du Sport, Charleroi, Belgique, 8-9 octobre 1993.
17. BRISSON, G.R., AYOTTE, C., GAREAU, R., GUTTIÉREZ-SAINZ, A., LÉVESQUE, C. et GOUDREAULT, D. : Increasing use of hormonal manipulations by well-informed cheating athletes. Congreso Mundial de Ciencias de la Actividad Física y el Deporte, Grenada University, Spain, November 10-13, 1993.
18. BRISSON, G.R., GAREAU, R. et AYOTTE, C. : Counteracting the erythropoietin-induced improvement in oxygen supply in top-level endurance athletes. Congreso Mundial de Ciencias de la Actividad Física y el Deporte, Grenada University, Spain, November 10-13, 1993.
19. AYOTTE, C.: Determination of free methyltestosterone in plasma samples. 12th Köln Workshop on Dope Analysis, Institut für Biochemie, Köln, Germany, April 9-16, 1994.
20. AYOTTE, C., CHARLEBOIS, A., GOUDREAULT, D., and LÉVESQUE, C.: Improvements of drug detection and analysis by appropriate preparation of the injection port of the chromatograph. 12th Köln Workshop on Dope Analysis, Institut für Biochemie, Köln, Germany, April 9-16, 1994.
21. AYOTTE, C.: Le contrôle du dopage, INRS-Santé, Pointe Claire, QC, 30 novembre 1994.
22. GOUDREAULT, D. and AYOTTE, C.: Investigation of mesterolone urinary metabolites by GC/MS. 13th Köln Workshop on Dope Analysis, Institut für Biochemie, Köln, Germany, March 13-17, 1995.
23. LÉVESQUE, C., GOUDREAULT, D. et AYOTTE, C.: Identification du d- et l-hydroxy-3-N-méthyl morphinane par CG/SM et dérivation chirale, 63e congrès, Association canadienne-française pour l'avancement des sciences (ACFAS), Université du Québec à Chicoutimi, Chicoutimi, QC, 22-26 mai 1995.

24. GOUDREAULT, D., LÉVESQUE, C. et AYOTTE, C.: Détection et identification de la buprénorphine urinaire par CG/SM, 63e congrès, Association canadienne-française pour l'avancement des sciences (ACFAS), Université du Québec à Chicoutimi, Chicoutimi, QC, 22-26 mai 1995.
25. BRISSON, G.R., GUTTIÉREZ-SAÍNZ, Á., AYOTTE, C., GAREAU, R. et CASTILLO, M.: Axe hypophyso-leydigien et application transcutanée de propionate de testostérone. Réunion annuelle de la Société française de médecine du sport, Troyes en Champagne, France, 22 - 24 juin 1995.
26. BRISSON, G.R., GUTTIÉREZ-SAÍNZ, Á., AYOTTE, C., GAREAU, R., SENÉCAL, L. and CASTILLO, M.: Blood gonadotropin and testosterone levels after transdermal administration of testosterone propionate in male adults. Acceptée pour présentation à la Conférence annuelle de la Société canadienne de physiologie de l'exercice, Québec, QC, 26 - 28 octobre 1995, et résumé dans la revue Canadienne de Physiologie Appliquée 20 (suppl.): 5P (1995).
27. AYOTTE, C. : Dépistage des agents anabolisants dans l'urine humaine. Séminaire INRS-Santé, novembre 1995.
28. AYOTTE, C. and CHARLEBOIS, A. : T/E values : measurements and observations. 14th Köln Workshop on Dope Analysis, Institut für Biochemie, Köln, Germany, March 1996.
29. AYOTTE, C., CHARLEBOIS, A., LAPOINTE, S., BARRIAULT, D. and SYLVESTRE, M. : Validity of urine samples : microbial degradation. 14th Köln Workshop on Dope Analysis, Institut für Biochemie, Köln, Germany, March 18-22, 1996.
30. AYOTTE, C. : Harmonization of laboratory protocols. Meeting of Heads of IOC accredited laboratories, Monaco, March 1996.
31. AYOTTE, C., CHARLEBOIS, A. and GOUDREAULT, D. : Bromantan : March 1994-July 1996, 15th Köln Workshop on Dope Analysis, Institut für Biochemie, Köln, Germany, February 1997.
32. GOUDREAULT, D. and AYOTTE, C. : The identification of fenozolone urinary metabolites, 15th Köln Workshop on Dope Analysis, Institut für Biochemie, Köln, Germany, February 1997.
33. FAKIRIAN, A., GOUDREAULT, D. and AYOTTE, C. : The use of caffeine metabolites as a second probe in case of elevated urinary caffeine levels. 16th Köln Workshop on Dope Analysis, Institut für Biochemie, Köln, Germany, March 1998.
34. AYOTTE, C. and LÉVESQUE, J-F. : Criteria for the detection of androstenedione oral administration. 17th Köln Workshop on Dope Analysis, Institut für Biochemie, Köln, Germany, March 1999.
35. LÉVESQUE, J-F., GOUDREAULT D. and AYOTTE, C. : The administration of oral DHEA : the efficiency of steroid profiling, 17th Köln Workshop on Dope Analysis, Institut für Biochemie, Köln, Germany, March 1999.
36. AYOTTE, C. and BOWERS, L. : Recent experiences with the appeal process, 17th Köln Workshop on Dope Analysis, Institut für Biochemie, Köln, Germany, March 1999.
37. GOUDREAULT, D., BHERER, P., LEVESQUE J-F., POIRIER, D. and AYOTTE, C., Androstenedione metabolism: end of the story ..., 19th Köln Workshop on Dope Analysis, Institut für Biochemie, Köln, Germany, March 2001.
38. AYOTTE, C., CHARLEBOIS, A., GOUDREAULT, D., LAJEUNESSE, A., CLEROUX, M., RICHARD, Y., COUTURE, J-P. and FAKIRIAN, A., GC/C/IRMS and GC/MS in "natural"

steroids testing, 19th Köln Workshop on Dope Analysis, Institut für Biochemie, Köln, Germany, March 2001.

39. GOUDREAULT, D., BHÉRER, P., LÉVESQUE, J.-F., POIRIER, D. and AYOTTE, C. : Androstenedione metabolism : end of the story ... 19th Cologne Workshop on Dope Analysis, March 2001.
40. AYOTTE, C., GUAY, C., CLÉROUX, M., GOUDREAULT, D. and FAKIRIAN, A., Origin of elevated levels of norandrosterone in human urine: half-truths vs. facts, 19th Cologne Workshop on Dope Analysis, March 2002.
41. AYOTTE, C., Litigation and Doping Controls: defending positive findings of endogenous steroids, 20th Cologne Workshop on dope Analysis, Köln, Allemagne, 2003.
42. AYOTTE, C., GOUDREAULT, D., CYR, D., AYOTTE, P., C. LAROCHELLE and POIRIER, D., Characterisation of chemical and hormonal properties of new steroids related to doping of athletes, Cologne Workshop on Dope Analysis, Cologne, June 2006.
43. AYOTTE, C., ROMIGUIÈRE, C., FAKIRIAN, A., FLENKER, U., HEBESTREIT, M., PIPER, T. and SCHANZER, W., The usefulness of GC/C/IRMS in determining the origin of low levels 19-NA: Application to routine analyses, Cologne Workshop on Dope Analysis, Cologne, June 2006.
44. P. DESHARNAIS, P.E. GROLEAU, C. HAMELIN, and C. AYOTTE, Intermediate neuraminidase activity: a possible link toward suspicious or “effort-like” EPO isoelectric profiles, Poster Session, Cologne Workshop on Dope Analysis, Cologne, June 2006.
45. P.E. GROLEAU, P. DESHARNAIS, C. HAMELIN, and C. AYOTTE, Purification of EPO from urine retentates prior to IEF, Poster Session, Cologne Workshop on Dope Analysis, Cologne, June 2006.
46. P. DESHARNAIS and C. AYOTTE, Towards screening of EPO by SDS-Page Analysis, Cologne Workshop on Dope Analysis, Cologne, February 2007.
47. P.E. GROLEAU, P. DESHARNAIS and C. AYOTTE, Characterisation of glycopeptides released from pml levels of recombinant erythropoietin by nanoflow HPLC-Chip electrospray ionization coupled to ion trap mass spectrometry, Cologne Workshop on Dope Analysis, Cologne, February 2007.